

TEMPERATURE OF THE AIR.

The isothermal lines on chart No. II show the general distribution of the temperature of the air for the month. By reference to the table of average temperatures given on the same chart it will be seen that it has been below the average in the Pacific States, over the Western Plateau and in the Lower Canadian Provinces. In the East Gulf and Atlantic States it has been about normal for the whole month, the high temperatures experienced during the middle of the month having been compensated by the moderate temperatures attending the continued rains of the latter part. In the South Atlantic States the means for Jacksonville, Savannah, Charleston, Augusta and Lynchburg show a slight excess, which is, however, compensated for by those for the North Carolina coast. Elsewhere the temperature of the present month has been higher than the average, especially so from the Upper Lake region to the Rio Grande valley. The following data, relative to sunstrokes, generally extracted from newspaper reports, together with the notes on drought given under "Precipitation," will serve to give a fair idea of the effects of the high temperatures: On the 8th, at St. Louis, Mo., there were seven prostrations; 9th, eight prostrations and one fatal; 10th, warmest day of season, 100°, "two degrees higher than last summer," six prostrations, two fatal; Milwaukee; Wis., several prostrations, 1 fatal; Charleston, S. C., 101°, "two degrees higher than for last twenty years;" Nashville, Tenn., one fatal. 11th, New York City, 92°, several prostrations, none fatal; St. Louis, Mo., six prostrations, one fatal; Cincinnati, Ohio, two fatal; Memphis, Tenn., one fatal; Charleston, S. C., "very hot," fifteen fatal. 12th, Charleston, "111° at 2 p. m., highest temperature for over 100 years," over one hundred prostrations, thirty fatal; Milwaukee, Wis., several prostrations; Memphis, Tenn., three prostrations. 13th, Portland, Mich., one fatal. 14th, St. Louis, Mo., one fatal; Fort Wayne, Ind., three prostrations, none fatal; Memphis, Tenn., three prostrations, one fatal. 15th, New York City, seventeen prostrations, one fatal; Atlanta, Ga., "heat almost intolerable for past ten days, sunstrokes have been reported in almost every city in the state;" Detroit, Mich., "heat intense," one fatal; Cincinnati, Ohio, several prostrations, one fatal; Vincennes, Ind., one prostration; Fort Wayne, Ind., two fatal; Osbourne, Ohio, one probably fatal; Paris, Ky., several prostrations; Delaware, O., one prostration; Akron, two fatal; St. Louis, Mo., three prostrations, Sandusky, Ohio, one prostration; Nashville, Tennessee, two "sunstrokes;" 16th, Philadelphia, Pa., "heat very great," one or two fatal; Pittsburgh, Pa., "hottest day this year," three prostrations; Kittanning, Pa., one fatal; Cincinnati, O., four prostrations, one fatal; St. Louis, Mo., six prostrations, one fatal; Baltimore, Md., seven prostrations, two fatal; New York City, N. Y., nineteen prostrations, four fatal; Boston, Mass., "two days of intense heat;" Chattanooga, Tenn., "one case of sunstroke." 31st, Cincinnati, O., one prostration.

Maximum and Minimum Temperatures.—Upon charting the maximum temperatures of the month, it is found that the line of 90° runs through Maine, the Lower Lake region, southern Michigan, northward over Lake Michigan, thence over Lake Superior to Manitoba, and afterwards includes western Montana; the line of 100° includes Virginia, the South Atlantic and East Gulf States and Tennessee, except at the stations along the Gulf and North Carolina coasts—the highest maximum (105°) over this region occurred at Savannah on the afternoon of the 12th; a second 100° line runs northward from the Rio Grande along the coast of Texas, through Arkansas and Missouri to Illinois, westward to Kansas and southwestward through southern New Mexico; thence northwestward, including within its limits the southwestern half of Arizona, the interior of California and portions of Nevada and Idaho. Areas of 105° and above comprise part of Indian Territory, the whole interior of Texas, southern half of Arizona and the San Joaquin and Sacramento valleys. Extreme temperatures are reported as follows:—Yuma, 115°; Burkes, 114°, at these stations maximum temperatures above 100° daily, ranging at Yuma from 101° on the 2nd, and at Burke's from 102° on the 2nd, to 115° and 114° respectively on the 26th; Red Bluff, Cal., Phoenix and Florence, Ariz., 110°; Fort Gibson, Ind. Ty., 109°; and Denison and Griffin, Tex., 108°.

Upon charting the minimum temperatures it is found that the line of 70° and above includes only southern Texas and the stations bordering the Gulf of Mexico. The line of 60° and above comprises within its limits the South Atlantic States, Tennessee and Ohio valley, Virginia, Maryland, Indian Territory, Missouri, and Kansas. Below 50° are the northern parts of New England and Upper Lakes, the Northwest, Oregon, elevated stations and the Rocky Mountain Slope as far south as Santa Fé. The lowest temperature reported from a Signal Service station, except Pike's Peak 30° and Mt. Washington 31°, was at Campo 30°. The following list refers to the States and Territories in detail:

Minimum and Maximum Temperatures are, respectively, as follows: *Maine*—47° at Eastport to 93° at Portland. *Vermont*—42° at *Woodstock to 90° at Burlington and 94° at *West Charlotte. *Massachusetts*—43° at *Waltham and 50° at Boston to 94° at Boston and 99° at *Somerset. *Rhode Island*—51° at *Fort Adams to 86° at Newport and 88° at *Fort Adams. *Connecticut*—51° at New London and New Haven to 93° at New Haven. *New York*—46° at *Cooperstown and 52° at Albany to 96° at Sandy Hook and 100° at *Starkey. *New Jersey*—46° at Vineland and 53° at Barnegat to 96° at Barnegat and 100° at *Acton and *Linden. *Pennsylvania*—50° at *Newcastle and *Wellsborough and 56° at Pittsburgh to 99° at Pittsburgh and 102° at *Milton. *Delaware*—66° to 94° at *Dover. *Maryland*—52° at *Woodstock to 99° at Baltimore and 102° at *Fort McHenry. *District of Columbia*—59° to 102° at Washington. *Virginia*—57° at Fort Whipple to 102° at Norfolk and 104° *Dover Mines. *West Virginia*—57° to 98° at Morgantown. *North Carolina*—56° at *White Sulphur Springs, 63° at Charlotte, Wilmington and Smithville to 103° at Wilmington and 107° at *Weldon. *South Carolina*—71° to 105° at Charleston. *Georgia*—61° at

*Thomasville and 65° at Atlanta to 104° at Augusta and 105° at *Thomasville. *Florida*—68° to 104° at Jacksonville. *Alabama*—67° at *Wilsonville and 71° at Mobile to 101° at Montgomery and *Wilsonville. *Mississippi*—68° at Vicksburg to 98° at Vicksburg and 102° at *Brookhaven. *Louisiana*—67° to 100° at Shreveport. *Texas*—59° at Fort Davis to 109° at Graham. *Ohio*—53° at *Westerville to 98° at Cincinnati and 100° at *Jacksonburg. *Kentucky*—63° to 98° at Louisville. *Tennessee*—64° at Knoxville to 101° at Chattanooga and Nashville. *Arkansas*—66° at *Mount Ida and 67° at Little Rock to 100° at *Mount Ida and Little Rock. *Michigan*—48° at Alpena to 93° at Marquette and 96° at *Niles and *Thornville. *Indiana*—55° at *Spiceland and 58° at Indianapolis to 96° at Indianapolis and 100° at *Veray. *Illinois*—58° to 101° at Springfield. *Missouri*—55° at *Kansas City and 62° at St. Louis to 100° at St. Louis. *Kansas*—61° at Leavenworth to 97° at Leavenworth and 105° at *Independence and *Wellington. *Wisconsin*—50° at *Neillsville and 53° at Milwaukee to 93° at Madison. *Iowa*—55° at Des Moines and *Muscatine to 98° at Keokuk and 102° at *Boonesboro. *Nebraska*—53° to 99° at North Platte. *Indian Territory*—67° at Fort Sill and Fort Gibson to 109° at Fort Gibson. *Minnesota*—49° at Duluth to 92° at St. Paul. *Dakota*—44° at Deadwood to 98° at Yankton and 102° at *Olivet. *Colorado*—33° at *Summit to 98° at *Hermosa and Denver. *New Mexico*—47° at Santa Fe to 104° at La Mesilla. *Wyoming*—38° at *Fort Fred Steele and 42° at Cheyenne to 95 at Cheyenne and 101° at *Fort Fred Steele. *Montana*—43° to 86° at Virginia City. *Utah*—55° at Salt Lake City to 97° at Salt Lake City and 99° at *Kanab. *Nevada*—39° at Winnemucca to 97° at Winnemucca and 102° at *Fort McDermit. *Arizona*—41° at Fort Apache to 116° at Florence, Yuma and *Texas Hill. *Idaho*—43° to 100° at Boise City. *California*—45° at *Calistoga and 51° at San Francisco to 110° at Red Bluff and 119° at *Mammoth Tank. *Oregon*—40° to 96° at Roseburg.

*Those marked with a • are voluntary reports.

Ranges of Temperature at Signal Service Stations.—The monthly ranges will appear from an examination of the minima and maxima just given. Greatest daily ranges vary in New England from 20° at Wood's Holl and Mount Washington to 32° at Thatcher's Island; Middle Atlantic States, 16° at Cape May to 34° at Norfolk; South Atlantic States, 14° at Cape Lookout to 29° at Augusta; Gulf States, 14° at Key West to 28° at Shreveport and Corsicana; Ohio valley and Tennessee, 19° at Cairo to 32° at Pittsburgh; Lower Lake region, 24° at Erie to 31° at Oswego; Upper Lake region, 23° at Chicago, Grand Haven and Milwaukee to 33° at Marquette; the Northwest, 23° at Davenport, La Crosse and Omaha to 36° at Pembina and Fort Stevenson; Eastern Slope, 27° at Eagle Pass and San Antonio to 45° at Pilot Point; Rocky Mountain stations, 30° at Pike's Peak to 42° at Cheyenne; Western Plateau, 32° at Salt Lake City to 45° at Winnemucca; California, 17° at San Diego to 45° at Visalia; Oregon, 30° at Portland to 35° at Roseburg.

Frost.—1st, at Springfield, Mass., Niles, Starkey, N. Y.; 5th, at Scott Valley, Cal., heavy, killing vegetation; Fall River, on low ground, and Westport, Mass., 6th; sharp frost in Magdalen Islands, Gulf of St. Lawrence; Summit, Col., nearly every night during month.

Ice.—5th, at Yreka, Cal.

PRECIPITATION.

General Notes on Precipitation of Month.—The general distribution of rain-fall for the month is illustrated as accurately as possible on chart No. III by returns from about 500 stations. In the lower left-hand corner of the chart will be found a table giving the average precipitation for July by districts. In general, the rain-fall for the first half of the month was deficient; serious droughts being reported in Texas, Nevada, Utah and the Middle and South Atlantic States and Tennessee. The extensive precipitation of the latter part of the month somewhat remedied the condition of Tennessee and the Middle and South Atlantic States but has not materially improved the condition of the other States, where numerous droughts were reported as prevailing at the end of the month. The excess of precipitation has been greatest in Oregon, Minnesota, Upper Missouri valley and Eastern Gulf States. Marked deficiencies are reported from the Western Gulf States and Ohio valley, and trifling ones from the Middle Atlantic States, Lower Missouri valley and California. Moderate amounts, in excess, have fallen in other districts. The month is remarkable for the number of sudden and heavy rains reported.

Specially Heavy Rains.—1st, Leavenworth, Kan., 1.51 inches in 8 hours. 2nd, Okalooska, La., 2.05 in 3 hours 30 minutes; St. Paul, Minn., 4.93 in 8 hours 30 minutes. 3rd, Fort Snelling, Minn., 6.60 in 25 hours; Mobile, Ala., 1.60 in 2 hours; Alpena, Mich., 1.47 in 2 hours. 4th, New Orleans, La., 1.37 in 3 hours 40 minutes. 6th, Chicago, Ill., 1.15 in 1 hour 45 minutes. 7th, Madison, Wis., 3.70 in 24 hours, of which 1.18 fell in 1 hour 45 minutes; La Crosse, Wis., 5.15 in 30 hours; Dubuque, Iowa, 2.85 in 8 hours; Logansport, Ind., 3.50 in 30 minutes; at Mound City, Mo., 10 inches is "reported" during a storm of about 36 hours; no authority given. 8th, Hinsdale, Ill., 3.75; Columbus, Ohio, 0.96 in 2 hours. 9th, Davenport, Iowa, 3.11 in 10 hours; Dubuque, Iowa, 2.52 in 6 hours 30 minutes; Monticello, Iowa, 5.60 in 24 hours; Sidney, Neb., 2.18 in 2 hours 45 minutes. 10th, Breckenridge, Minn., 1.59 in 3 hours; Duluth, Minn., 1.32 in 4 hours; Urbana, Ohio, nearly 2.00 in 25 minutes; Hudson, Ohio, 3.00 on 10th and 11th; Cleveland, Ohio, 3.86 in 24 hours, of which 3.30 fell in 7 hours 35 minutes; greatest amount in same time for 25 years. 11th, Sandusky, Ohio, 2.30 in 9 hours; Toledo, Ohio, 0.73 in 1 hour 15 minutes; Norwalk, Ohio, 1.04 in 1 hour; Cleveland, Ohio, 3.30 in 6 hours 35 minutes, of which 1.24 fell in 1 hour 5 min. 12th, New London, Conn., 1.44 in 8 hours; New Haven, 3.00 in 8 hours. 14th, Smithville, N. C., 1.65 in 8 hours; Thomasville, Ga., 2.18 inches in 6 hours. 15th, Yankton, Dak., 3.11 in 3 hours 55 minutes. 16th, New London, Conn., 1.73 in 5 hours 40 minutes; New Haven, 1.69 in 2 hours; Newport, R. I., 1.20 in 6 hours 20